Removing the Obfuscation.

Friday, October 15, 2021

Removing the obfuscation from someone's presentation includes jargon, not only in the common grammar, but the figure as well. Read and compare.

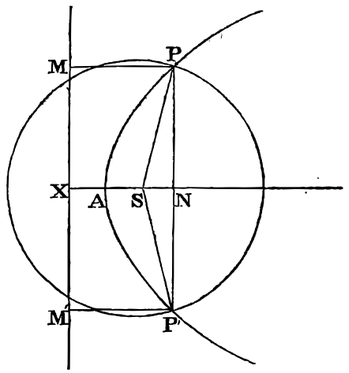
CHAPTER I.

TRACING THE CURVE.

1. *When the focus, directrix, and eccentricity of a conic are given, any number of points on the curve may be determined.*

For, let *S* be the focus, *MM'* the directrix.

Draw *SX* meeting the directrix at right angles in *X*, and in *SX* take a point *A* such that the ratio of *SA* to *AX* may be equal to the eccentricity. Then *A* is the vertex of the curve.



In *AS*, or *AS* produced, take any point *N*, and with center *S*, radius *SP*, such that

$$SP : NX = SA : AX$$

describe a circle cutting in *P*, *P'*, the straight line drawn through *N* parallel to the directrix.

Let *PM*, *P'M'* be the perpendiculars from *P*, *P'* on the directrix. Then *PM* is equal to *NX*.

Therefore

$$SP : PM = SA : AX,$$

or *P* is a point on the curve.

Similarly

$$SP : PM' = SA : AX,$$

or P' is a point on the curve.

Thus any number of points on the curve may be determined corresponding to the various positions of *N*.

Drawing the Conic.

When the unit and eccentricity of a conic are given, any number of points on its curve may be determined.

For, let *AB* be the Unit, *A* the origin of the Unit.

Assert any point *C* of the Unit which will create the ratio of *BC* to *AC*. This ratio is called the eccentricity of the conic and can produce every possible ratio. *C* is the vertex of that conic.

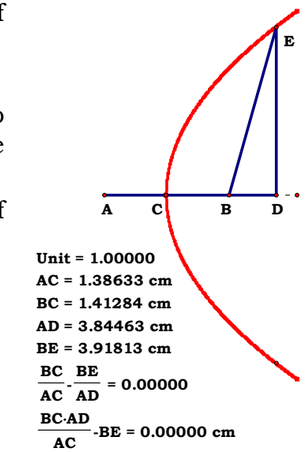
Assert any point *D*. With center *B* construct the hypotenuse *BE* of the right angle *BDE* such that *BE* is to *AD* as *BC* is to *AC*.

Thus the Algebraic Equation will be:

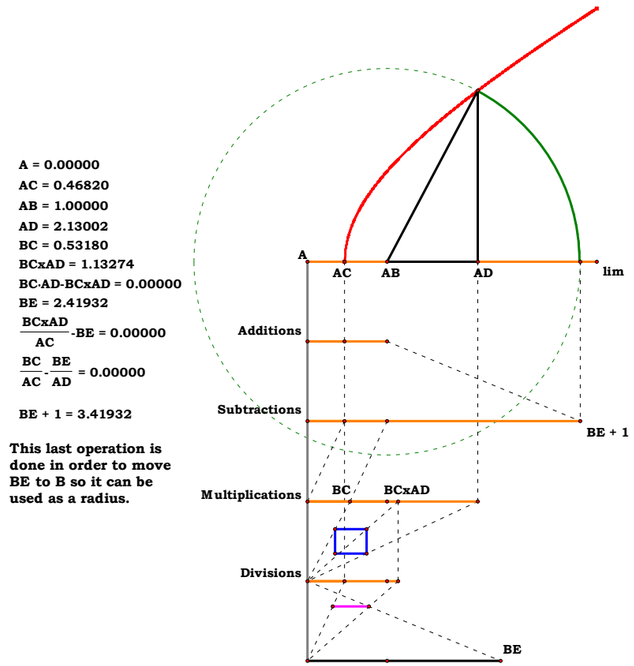
$$\frac{BC}{AC} = \frac{BE}{AD}.$$

As *AD* is asserted by construction, we can compute *BE* from

$$\frac{BC \times AD}{AC} = BE \text{ for any possible } D.$$



Which can be drawn in Sketchpad using Basic Analog Mathematics, or Basic Analog Grammar or what I sometimes call, Jacob's Ladder.



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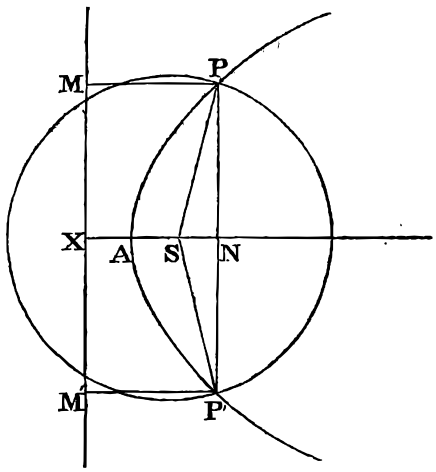

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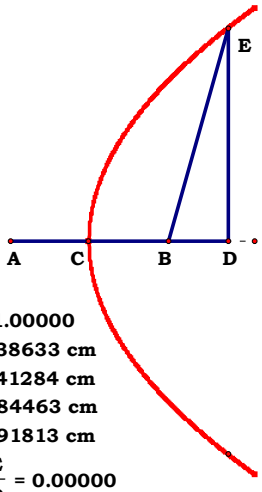

Unit = 1.00000
AC = 1.38633 cm
BC = 1.41284 cm
AD = 3.84463 cm
BE = 3.91813 cm
$\frac{BC}{AC}-\frac{BE}{AD}$ = 0.00000
$\frac{BC \cdot AD}{AC}$-BE = 0.00000 cm

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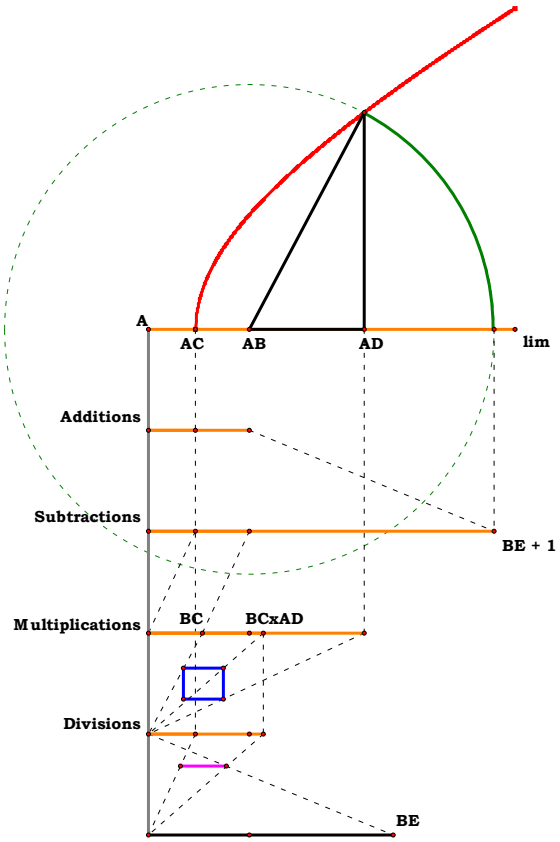

A = 0.00000
AC = 0.46820
AB = 1.00000
AD = 2.13002
BC = 0.53180
BCxAD = 1.13274
BC·AD-BCxAD = 0.00000
BE = 2.41932
$\frac{BCxAD}{AC}$-BE = 0.00000
$\frac{BC}{AC}-\frac{BE}{AD}$ = 0.00000

BE + 1 = 3.41932

This last operation is done in order to move BE to B so it can be used as a radius.

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